WE CLAIM:

1. A method of regulating and manipulating sucrose content in a sugar storing plant by regulating the activity of the PFP enzyme in the plant.

2. A method according to claim 1 wherein the sucrose content of the plant is increased by the down regulation of the PFP enzyme in the plant.

3. A method according to claim 2 wherein the PFP enzyme is down regulated by the introduction of an untranslatable form or an antisense form of the nucleotide sequence as set out in Figure 1, a nucleotide sequence which is complementary to the nucleotide sequence of Figure 1, a variant of the nucleotide sequence of Figure 1, a portion of the nucleotide sequence of Figure 1, or a nucleotide sequence which hybridizes to the nucleotide sequence of Figure 1 under stringent hybridization conditions.

4. A method according to claim 3 wherein the untranslatable or antisense nucleotide sequence is introduced into the plant using a plant expression vector.

5. A method according to claim 4 wherein the plant expression vector is pUSPc 510 or pASPc 510.

6. An isolated nucleotide sequence comprising:

(i) a nucleotide sequence as set out in Figure 1;
(ii) a nucleotide sequence which is complementary to the nucleotide sequence of (i);
(iii) a variant of the nucleotide sequence of (i);
(iv) a portion of the nucleotide sequence of (i); or
(v) a nucleotide sequence which hybridizes to the nucleotide

sequence of (i) under stringent hybridization conditions.

7. An isolated nucleotide sequence as set out in Figure 2.

8 A nucleotide sequence according to claim 6 which is in an antisense orientation.

9. A gene construct comprising a promoter and nucleotide sequence as defined in claim 6 in a sense orientation, the gene construct lacking a translation initiation codon upstream of the nucleotide sequence or possessing an in-frame termination codon directly downstream of the initiation codon.

10. A gene construct according to claim 9 which comprises two promoters.

11. A gene construct according to claim 10 wherein the promoters are the CaMV35S and the maize polyubiquitin (UBI) promoters.

12. A gene construct comprising a promoter and a nucleotide sequence as defined in claim 6 in an antisense orientation.

13. A gene construct according to claim 12 which comprises two promoters.

14. A gene construct according to claim 13 wherein the promoters are the CaMV35S and the maize polyubiquitin (UBI) promoters.

15. The plant expression vector pUSPc 510 which includes the nucleotide sequence of Figure 1 in a sense orientation, but in an untranslatable form.

16. The plant expression vector pASPc 510 which includes the nucleotide sequence of Figure 1 in an antisense orientation.

17. A transformed plant cell which includes a gene construct according to claim 9.

18. A transgenic plant or plant part containing or derived from the transformed plant cell of claim 17.

19. A transgenic plant part according to claim 18 which is a callus.

20. A transformed plant cell according to claim 17 which is characterized by a lower level of the PFP β protein.

21. A transformed plant or plant part according to claim 18 characterized by a lower level of the PFP β protein.

22. A transformed plant cell according to claim 17 characterized by a lower level of PFP activity.

23. A transgenic plant or plant part according to claim 18 characterized by a lower level of PFP activity.

24. A transformed plant cell according to claim 17 characterized by a higher level of sucrose.

25. A transgenic plant or plant part according to claim 18 characterized by a higher level of sucrose.

26. A method of regulating or manipulating the level of active PFP in a plant cell including the step of transforming the plant cell with at least one gene construct according to claim 9.

27. A method of maintaining or increasing the sucrose level in plant tissue including the step of transforming cells of the plant tissue with at least

one gene construct according to claim 9.

28. A method of manipulating sucrose metabolism in a plant cell of a sugar-storing plant including the step of co-transforming the cell with a gene construct according to claim 9.

29. A method according to claim 28 wherein the sucrose metabolism in a sugar-storing plant or sugar-storing plant part containing stored sugar is altered.

30. A method according to claim 26 wherein the plant is sugarcane.